

Losses and Damages related to Floods in Morocco
Submission by the AMCDD: Moroccan Alliance for Climate and Sustainable Development
(the network of over 1000 Moroccan NGOs)
July 2023

Introduction

Due to its geographical location, Morocco is subject to a highly contrasting climate, with significant variations in rainfall over space and time. Morocco's natural water resources are among the lowest in the world (MEMEE, 2014). The diversity of landscapes, climatic variability and weather conditions, as well as geography and geology, expose the Moroccan territory to numerous natural hazards. A significant proportion of the Moroccan population and certain key sectors of the economy are particularly vulnerable to losses and damages from these risks.

These losses and damages should be understood in the context of justice. Recent studies have shown that women and young people often bear a disproportionate burden during such events, being 14 times more likely to die in a disaster than men in some regions. According to recent reports from Africa, young people are particularly vulnerable to climate-induced disasters, with over 65% of the population under the age of 35 in some countries (UNDP, 2022).

Among the climate-related hazards, floods account for 70% of officially recognized disasters, directly affecting the greatest number of people in Morocco and causing significant economic damage (OCDE, 2018). Different types of flooding are observed depending on geographical and climatic contexts, notably rapid flooding in small coastal watersheds, torrential flooding in mountainous areas and slower river-type flooding.

The risk of flooding affects the whole of Morocco, from isolated rural areas in the center and south of the country, such as the Guelmim region in 2014 or the Ourika valley in 2015, to the agricultural plains of the north, such as the Gharb valley marked by the flooding of the Sebou river in 2009, as well as the country's main urban centers, from greater Casablanca to Tangier. Recently, the Water Research and Planning Department identified some 1,000 sites at risk of flooding.

Economic and Human Losses

The World Bank's macrostructural model (MFMod), which is used to generate a probability distribution of GDP trajectories based on historical data, has shown that, in the absence of public interventions in adaptation and resilience aimed at reducing damage or mitigating impacts, the projected median impact of losses and damages from flooding will gradually rise from 0.2% of GDP in 2025 to over 0.5% of GDP in the decade to 2030, and almost 1% of GDP in 2050 (World Bank 2022).

In recent decades, flooding has become increasingly frequent in Morocco. In lowland areas, downstream of major river basins, these floods can sometimes cause considerable damage,

constituting an obstacle to the sustainable development of these regions.

Between 2000 and 2021, twenty major flooding events were recorded, resulting in average direct losses estimated at 450 million dollars per year (WB, 2022). Moreover, with over 65% of the population and 90% of industry concentrated on the country's coastline (WB, 2022), rising sea levels represent another long-term stress factor, particularly for low-lying areas, where flood risks will be exacerbated. It is therefore essential to recognize that, in the absence of adaptation measures, sea-level rise could lead to massive losses.

Flood-related disasters in Morocco from 1900 to 2021:

Floods subtype	No of events	Total Deaths	Total Affected	Damage (thousand US\$)	Number of Homeless
Not specified	15	577	409,248	35.000	38732
Flash flood	9	212	112,823	29.000	
Riverine flood	11	921	116,423	266.200	

Source: EM-DAT 2023

Vulnerable households disproportionately face the risk of flooding, and this disparity is set to worsen as a result of climate migration and coastal urbanization. Hazard and vulnerability maps drawn up for different Moroccan cities suggest that the most vulnerable areas are often deprived neighborhoods, characterized by limited access to public services, far from health services, public transport and fire stations. These areas are also likely to host climate migrants over the coming decades, which could lead to a growing relationship between water scarcity and increased exposure to flooding hazards for poor and vulnerable populations.

State intervention in flood prevention and management

- **National Flood Prevention Program**

Morocco's "Plan National de Protection contre les Inondations" (PNPI) is a government initiative aimed at minimizing the risks and impacts of flooding in the country. The program aims to strengthen the resilience of communities and infrastructure to flooding, with an emphasis on prevention, preparedness and emergency management.

The Department in charge of Water had thus helped identify nearly 400 at-risk areas nationwide using a risk matrix. The updated "Plan National des Inondations" (2016-2036) targets more than 1,000 flood-prone sites and provides for investments worth \$1.5 billion (Stratégie Nationale de Gestion des Risques et Catastrophes Naturelles, 2020-2030). On average, this figure represents an annual investment equivalent to around 16% of average annual flood losses.

- **Fund to combat the effects of natural disasters**

The “Fonds de lutte contre les effets des catastrophes naturelles (FLCN)” created in 2009 to contribute to the financing of relief, assistance and reparation actions in the event of natural disasters in Morocco. The fund also aims to improve the response capabilities of the various departments and organizations involved, as well as to strengthen monitoring and warning capabilities in the event of catastrophic events.

Between 2009 and 2012, the Fund mobilized substantial resources to meet disaster management needs. Resources mobilized over this period amounted to 1,961 million dirhams (approximately US\$200 million). These resources were obtained through various funding sources, including a US\$100 million donation from Saudi Arabia, a contribution of 300 million DH from the Hassan II Fund for Economic and Social Development, and an allocation of 800 million DH from the General Budget, spread over 4 years at a rate of 200 million DH per year (MEF, 2011).

This funding has enabled the implementation of prevention, relief and restoration measures in the event of natural disasters, helping to strengthen the country's resilience in the face of these extreme climatic events. Thanks to the involvement of the FLCN, Morocco now has additional financial resources to cope with the consequences of disasters and ensure a more effective and rapid response in emergency situations, but more support will be needed.

<i>Actions</i>	<i>Amount spent/mobilized</i>
Restoration and reconstruction of damaged facilities (roads, tracks and engineering structures, irrigation infrastructure, housing, schools, support for disaster-stricken businesses)	655,8 Million DH (~65.6 million USD)
Improving the means of intervention of those responsible for assisting disaster victims by granting aid to organizations (Civil Protection, Ministry of the Interior, Royal Gendarmerie).	310 Million DH (~31 million USD)
Construction of prevention facilities and reinforcement of warning and monitoring systems (hydraulic structures, weather forecasting and warning systems).	900 Million DH (~ 90 million USD)

Source: Report on special treasury accounts (MFE,2011)

Morocco has also introduced a sophisticated catastrophic risk insurance scheme based on:

- Coverage for insured households through supplementary premiums received and managed by private insurers (at least 8.9 million insured by 2021);
- Basic remuneration for uninsured individuals and households through the Fonds de Solidarité contre les Événements Catastrophiques (FSEC). This fund should benefit the 95% of the Moroccan population who have not taken out insurance.

- **Challenges and gaps in floods management**

Flood management in Mohammedia and Berchid (2002), Tangier (2008 and 2021), Missouri (2008) and the Gharb region (2009), among others, revealed the following:

- Lack of early warning capacity,
- lack of public awareness and education,
- The National Meteorological Department's (DMN) measuring stations and meteorological radar coverage are inadequate,
- Lack of civil protection resources,
- Lack of essential infrastructure (communications networks, etc.),
- Poorly prepared local response teams,
- Local risk management know-how has been lost,
- Drainage networks in urbanized areas failed to function,
- Public policies remain insufficient in terms of prevention and resilience,
- Lack of compensation and/or insurance plans on the part of the state: there are no short- or long-term reconstruction and compensation plans, the focus is solely on immediate reaction.

Key messages and requests from AMCDD

- **The loss and damage fund should have separate funding windows.** These separate windows should address the specific economic and non-economic needs of slow-onset loss and damage, disaster response as well as the need for direct and simplified access to funding for local communities and affected people. Disaster response - for example, in the case of floods - should focus on fast-disbursing funds. In contrast, slow-onset events require providing funds for the development of medium- to large-scale projects linked to resettlement, transition to alternative livelihoods and the rehabilitation of lost infrastructure. The fund must also reinforce the scale and scope of existing national and sub-national programs and funds.
- **Fair payment by polluters for loss and damage.** In light of the reform agenda of the international financial architecture and the growing momentum surrounding shipping levies to finance climate action within the International Maritime Organization (IMO), the loss and damage fund should be supplied with a percentage of revenues from air and maritime transport taxes, if implemented in a just and equitable manner.
- **Interlinkages between the Santiago Network for Loss and Damage (SNLD) and the loss and damage fund.** A budget and assistance must be allocated to help all developing countries carry out diagnostics, mapping and loss and damage assessments.
- **Guarantee and simplify local communities' access to funding for loss and damage.** Funds in the form of grants should be allocated directly to vulnerable communities and individuals. Civil society organizations can also act as representative and transparent bodies for communities, facilitating access and allocation of funds at local level by taking on legal responsibility and paperwork. The aim is not to weaken national and sub-national governments, but to strengthen community participation in long-term planning and the articulation of funding needs and priorities, given that they are the first to respond to loss and damage.

- **Promote strong stakeholder engagement in the Loss and Damage Fund and funding arrangements.** If civil society organizations and vulnerable local communities (especially women, young people, people with disabilities, indigenous peoples, etc.) are to play an important role in the distribution, use and articulation of funds, the Fund's charter or governing instrument must provide for the effective and inclusive participation of all stakeholders and the capacity-building of civil society organizations.